

January 29, 2015

Analytical Data Package Prepared For
CH2M Hill Plateau Remediation

Radiochemical Analysis By

TestAmerica Inc

2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.

Assigned Laboratory Code: TARL

Data Package Contains 14 Pages

Report No.: 64492

Results in this report relate only to the sample(s) analyzed.

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
W07031	F15-005	B304L6	J5A060413-1	M5V2P1AD	9M5V2P10	5007055
		B304L6	J5A060413-1	M5V2P1AE	9M5V2P10	5007057
		B304L6	J5A060413-1	M5V2P1AC	9M5V2P10	5007058

January 29, 2015



Certificate of Analysis

CH2M Hill Plateau Remediation Company
P.O. Box 1600
Mail Stop – R3-60
Richland, WA 99352

January 29, 2015

Attention: Scot Fitzgerald

SAF Number	:	F15-005
Date SDG Closed	:	January 6, 2015
Number of Samples	:	One (1)
Sample Type	:	Water
SDG Number	:	W07031
Data Deliverable	:	30-Day / Summary

CASE NARRATIVE

I. Introduction

On January 6, 2015, one sample was received at TestAmerica (TARL). Upon receipt, the sample was assigned laboratory ID numbers to correspond with the CH2M specific IDs.

II. Sample Receipt

The sample was received in good condition and no anomalies were noted during check-in.

III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

The requested analyses were:

Gamma Spectroscopy

Iodine-129 (LL) by method RL-GAM-002

Liquid Scintillation Counting

Technetium-99 by TEVA method RL-LSC-014

Tritium by method RL-LSC-005

CH2M Hill Plateau Remediation Company
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IV. Quality Control

The analytical results for each analysis performed includes a minimum of one laboratory control sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

V. Comments

Gamma Spectroscopy

Iodine-129 (LL) by method RL-GAM-002:

No analytical or quality issues were noted. The sample results and associated batch QC results are within contractual requirements.

Liquid Scintillation Counting

Technetium-99 by TEVA method RL-LSC-014:

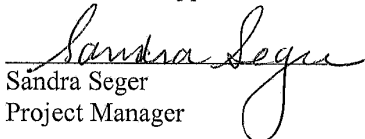
No analytical or quality issues were noted. The sample results and associated batch QC results are within contractual requirements.

Tritium by method RL-LSC-005:

No analytical or quality issues were noted. The sample results and associated batch QC results are within contractual requirements.

We certify that this data package is in compliance with the SOW, both technically and for completeness, including a full description of, explanation of, and corrective actions for, any and all deviations, from either the analyses requested or the case narrative requested. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager (or designee) and the laboratory's client services representative as verified by their signatures on this report.

Reviewed and approved:


Sandra Seger
Project Manager

Drinking Water Method Cross References

DRINKING WATER ASTM METHOD CROSS REFERENCES		
Referenced Method	Isotope(s)	TestAmerica Richland's SOP No.
EPA 901.1	Cs-134, I-131	RL-GAM-001
EPA 900.0	Alpha & Beta	RL-GPC-001
EPA 00-02	Gross Alpha (Coprecipitation)	RL-GPC-002
EPA 903.0	Total Alpha Radium (Ra-226)	RL-RA-002
EPA 903.1	Ra-226	RL-RA-001
EPA 904.0	Ra-228	RL-RA-001
EPA 905.0	Sr-89/90	RL-GPC-003
ASTM D5174	Uranium	RL-KPA-003
EPA 906.0	Tritium	RL-LSC-005

Results in this report relate only to the sample(s) analyzed.

Uncertainty Estimation

TestAmerica Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, $R = \text{constants} * f(x, y, z, \dots)$. The components (x, y, z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1, 2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/\sqrt{n}), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or TestAmerica.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
Total Uncert (#s) u_c - Combined Uncertainty.	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, u_c the combined uncertainty. The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or TestAmerica "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. $Lc = (1.645 * \sqrt{2 * (BkgrndCnt / BkgrndCntMin) / SCntMin}) * (ConvFct / (Eff * Yld * Abn * Vol) * IngrFct)$. For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. $MDC = (4.65 * \sqrt{(BkgrndCnt / BkgrndCntMin) / SCntMin} + 2.71 / SCntMin) * (ConvFct / (Eff * Yld * Abn * Vol) * IngrFct)$. For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the Work Order Number.
RER	The equation Replicate Error Ratio = $(S-D) / [\sqrt{TPUs^2 + TPUD^2}]$ as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUD is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by TestAmerica upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

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CH2MHILL Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F15-005-040	PAGE 1 OF 1
COLLECTOR J.R. Aguilar/CHPAC	COMPANY CONTACT EVANS, RT	TELEPHONE NO. 373-7924	PROJECT COORDINATOR EVANS, RT	PRICE CODE 7H	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION 289-T, Effluent Tank, Valve V07-Y80D - DUP	PROJECT DESIGNATION 200W Pump & Treat - Treatment Plant Water Sampling		SAF NO. F15-005	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-4919/124	ACTUAL SAMPLE DEPTH N/A	COA 303110	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO TestAmerica Incorporated, Richland		BILL OF LADING/AIR BILL NO.			

MATRIX* A=Air DL=Drum L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	PRESERVATION HCl to pH <2	None	None
	HOLDING TIME	6 Months	6 Months	6 Months
	TYPE OF CONTAINER	P	P	G/P
	NO. OF CONTAINER(S)	1	1	2
	VOLUME	500mL	1L	4L
SPECIAL HANDLING AND/OR STORAGE		TITRUM_DIST LSC COMMON;		
		T099_FY05K LSC COMMON;		
		I129LL_SEP_LE PS_GS COMMON;		

MSVZP

J5A060413
SDG# 607031
Due 2/15/15

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM J.R. Aguilar/CHPAC	DATE/TIME JAN 05 2015 1405	RECEIVED BY/STORED IN SSU-#1	DATE/TIME JAN 05 2015 1405	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-14-206	
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME JAN 06 2015 0610	RECEIVED BY/STORED IN K.C. Patterson	DATE/TIME JAN 06 2015 0610		
RELINQUISHED BY/REMOVED FROM K.C. Patterson	DATE/TIME JAN 06 2015	RECEIVED BY/STORED IN J. Friesz, TARL	DATE/TIME JAN 06 2015 0610		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME	
PRINTED ON 12/15/2014					

TRVL-14- 206



January 29, 2015

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Sample Check-in List

Date/Time Received: 1/6/15 0810 Container GM Screen Result: (Airlock) 0 cpm Initials [J]
Sample GM Screen Result (Sample Receiving) 70 cpm Initials [J]

Client: FLH SDG #: W07031 SAF #: F15-005 NA []

Lot Number: JSA060413

Chain of Custody # F15-005-040

Shipping Container ID or Air Bill Number: Hand Delivered NA [J]

Samples received inside shipping container/cooler/box Yes [J] Continue with 1 through 4. Initial appropriate response.
No [] Go to 5, add comment to #16.

1. Custody Seals on shipping container intact? Yes [] No [] No Custody Seal [J]
2. Custody Seals dated and signed? Yes [] No [] No Custody Seal [J]
3. Cooler temperature: 4.6 °C ON ICE NA []
4. Vermiculite/packing materials is NA [J] Wet [] Dry []

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes [J] No []
6. Number of samples received (Each sample may contain multiple bottles): 1
7. Containers received: 1x 600ml; 1x 1p; 2x 4lp

8. Sample holding times exceeded? NA [] Yes [] No [J]
9. Samples have: _____ tape _____ hazard labels J custody seals J appropriate sample labels
10. Matrix: _____ A (FLT, Wipe, Solid, Soil) J I (Water) _____ S (Air, Niosh 7400) _____ T (Biological, Ni-63)
11. Samples:
J are in good condition _____ are leaking _____ are broken
_____ have air bubbles (Only for samples requiring no head space) _____ Other _____
12. Sample pH appropriate for analysis requested Yes [J] No [] NA []
(If acidification is necessary go to pH area & document sample ID, initial pH, amount of HNO₃ added and pH after addition on table)
13. Were any anomalies identified in sample receipt? Yes [] No [J]
14. Description of anomalies (include sample numbers): NA [J]

15. Sample Location, Sample Collector Listed on COC? * Yes [J] No []
*For documentation only. No corrective action needed.

16. Additional Information: NIA

[] Client/Courier denied temperature check.

[J] Client/Courier unpack cooler.

Sample Check-in List completed by Sample Custodian:
Signature: [Signature] Date: 1/6/15

Client Notification needed? Yes [] No [J] Date: _____

By: _____

Person contacted: _____

[J] No action necessary; process as is

Project Manager [Signature]

Date 1-7-15

SKS
1-7-15

January 29, 2015

Sample Results Summary

Date: 29-Jan-15

TestAmerica Inc TARL

Ordered by Method, Batch No., Client Sample ID.

Report No. : 64492

SDG No: W07031

Client Id		Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
Batch	Work Order								
5007058 I129LL_SEP_LEPS_GS									
B304L6									
	M5V2P1AC	I129	-2.21E-02 +- 2.1E-01	U	pCi/L	84%	3.52E-01	1.00E+00	
B304L6 DUP									
	M5V2P1AJ	I129	2.51E-01 +- 2.0E-01	U	pCi/L	86%	2.60E-01	1.00E+00	238.6
5007055 TC99_ETVDSK_LSC									
B304L6									
	M5V2P1AD	Tc-99	5.63E+01 +- 6.2E+00		pCi/L	100%	9.72E+00	1.50E+01	
B304L6 DUP									
	M5V2P1AG	Tc-99	6.70E+01 +- 6.6E+00		pCi/L	100%	9.88E+00	1.50E+01	17.4
5007057 TRITIUM_DIST_LSC									
B304L6									
	M5V2P1AE	H-3	2.37E+03 +- 2.3E+02		pCi/L	100%	2.98E+02	4.00E+02	
B304L6 DUP									
	M5V2P1AH	H-3	2.23E+03 +- 2.2E+02		pCi/L	100%	2.99E+02	4.00E+02	6.0
No. of Results: 6									

TestAmerica Inc RPD - Relative Percent Difference.
rptTALRchSaSummary2 V5.3.6.5 U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.
A2002

January 29, 2015

QC Results Summary

Date: 29-Jan-15

TestAmerica Inc TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 64492

SDG No.: W07031

Batch	Work Order	Parameter	Result +/- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
I129LL_SEP_LEPS_GS									
5007058	BLANK QC,								
	M5WGF1AA	I129	-8.19E-04 +/- 1.8E-01	U	pCi/L	89%			3.03E-01
5007058	LCS,								
	M5WGF1AC	I129	9.52E+00 +/- 1.2E+00		pCi/L	95%	87%	-0.1	3.19E-01
TC99_ETVDSK_LSC									
5007055	MATRIX SPIKE, B304L6								
	M5V2P1AF	Tc-99	3.34E+03 +/- 8.2E+01		pCi/L	100%	95%	-0.1	9.48E+00
5007055	BLANK QC,								
	M5WGA1AA	Tc-99	-6.12E-01 +/- 4.5E+00	U	pCi/L	100%			9.72E+00
5007055	LCS,								
	M5WGA1AC	Tc-99	4.83E+02 +/- 1.7E+01		pCi/L	100%	89%	-0.1	9.80E+00
TRITIUM_DIST_LSC									
5007057	BLANK QC,								
	M5WGE1AA	H-3	7.22E+01 +/- 1.4E+02	U	pCi/L	100%			3.06E+02
5007057	LCS,								
	M5WGE1AC	H-3	2.54E+03 +/- 2.3E+02		pCi/L	100%	96%	0.0	3.00E+02
No. of Results: 7									

TestAmerica Inc Bias - (Result/Expected)-1 as defined by ANSI N13.30.
 rptSTLRchQcSummary V5.3.6.5 U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.
 A2002

FORM I

Date: 29-Jan-15

SAMPLE RESULTS

Lab Name: TestAmerica Inc
 Lot-Sample No.: J5A060413-1
 Client Sample ID: B304L6

SDG: W07031
 Report No.: 64492
 COC No.: F15-005-040

Collection Date: 1/5/2015 12:50:00 PM
 Received Date: 1/6/2015 8:10:00 AM
 Matrix: WATER

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 5007055												
Tc-99	TC99_ETVDSK_LSC		5.7E+00	6.2E+00	9.72E+00	pCi/L	100%	(5.8)	1/20/15 10:53 p		0.1258	LSC8
	5.63E+01					4.66E+00	1.50E+01	(18.)			L	
Batch: 5007057												
H-3	TRITIUM_DIST_LSC		2.0E+02	2.3E+02	2.98E+02	pCi/L	100%	(7.9)	1/14/15 03:33 p		0.00502	LSC8
	2.37E+03					1.42E+02	4.00E+02	(20.9)			L	
Batch: 5007058												
I129	I129LL_SEP_LEPS_GS		2.1E-01	2.1E-01	3.52E-01	pCi/L	84%	-0.06	1/28/15 05:37 p		3.599	LEP4\$1
	-2.21E-02	U				1.49E-01	1.00E+00	-0.21			L	
No. of Results: 3												
Comments:												

TestAmerica Inc MDC|MDA|Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.
 V5.3.6.5 A2002

FORM II

Date: 29-Jan-15

DUPLICATE RESULTS

Lab Name: TestAmerica Inc
 Lot-Sample No.: J5A060413-1
 Client Sample ID: B304L6 DUP

SDG: W07031
 Report No.: 64492
 COC No.: F15-005-040

Collection Date: 1/5/2015 12:50:00 PM
 Received Date: 1/6/2015 8:10:00 AM
 Matrix: WATER

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 5007055												
Tc-99	TC99_ETVDSK_LSC		6.0E+00	6.6E+00	9.88E+00	pCi/L	100%	M5V2P1AG	Orig Sa DB ID: 9M5V2P10 1/21/15 12:59 a		0.1245	LSC8
	6.70E+01											
	5.63E+01		RPD 17.4			1.50E+01	(20.3)				L	
Batch: 5007057												
H-3	TRITIUM_DIST_LSC		2.0E+02	2.2E+02	2.99E+02	pCi/L	100%	M5V2P1AH	Orig Sa DB ID: 9M5V2P10 1/14/15 04:55 p		0.00503	LSC8
	2.23E+03										L	
	2.37E+03		RPD 6.0			4.00E+02	(20.1)					
Batch: 5007058												
I129	I129LL_SEP_LEPS_GS		2.0E-01	2.0E-01	2.60E-01	pCi/L	86%	M5V2P1AJ	Orig Sa DB ID: 9M5V2P10 1/28/15 05:38 p		3.6102	LEP5\$1
	2.51E-01	U									L	
	-2.21E-02	U	RPD 238.6			1.00E+00	(2.5)					

No. of Results: 3 Comments:

TestAmerica Inc RPD - Relative Percent Difference.
 rptSTLRchDupV5. MDC\MDA\Lc- Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 3.6.5 A2002 U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

FORM II

Date: 29-Jan-15

BLANK RESULTS

Lab Name: TestAmerica Inc

SDG: W07031

Matrix: WATER

Report No.: 64492

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 5007057												
H-3	TRITIUM_DIST_LSC	U	1.3E+02	1.4E+02	3.06E+02	pCi/L	100%	0.24	1/14/15 06:17 p		0.00503	LSC8
					1.46E+02	4.00E+02		(1.)			L	
Batch: 5007058												
I129LL_SEP_LEPS_GS												
I129	-8.19E-04	U	1.8E-01	1.8E-01	3.03E-01	pCi/L	89%	0.	1/28/15 07:23 p		3.562	LEP4\$1
					1.36E-01	1.00E+00		-0.01			L	
Batch: 5007055												
TC99_ETVDSK_LSC												
Tc-99	-6.12E-01	U	4.0E+00	4.5E+00	9.72E+00	pCi/L	100%	-0.06	1/21/15 02:02 a		0.1259	LSC8
					4.67E+00	1.50E+01		-0.27			L	
No. of Results: 3 Comments:												

TestAmerica Inc MDCI\MDA\Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchBlank U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.
 V5.3.6.5 A2002

FORM II LCS RESULTS

Date: 29-Jan-15

Lab Name: TestAmerica Inc

Matrix: WATER

SDG: W07031

Report No.: 64492

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 5007057 TRITIUM_DIST_LSC													
H-3	2.54E+03		2.0E+02	2.3E+02	3.00E+02	pCi/L	100%	2.64E+03	7.9E+01	96%	1/14/15 07:39 p	0.00503	LSC8
							Rec Limits:	70	130	0.0		L	
Batch: 5007058 I129LL_SEP_LEPS_GS													
I129	9.52E+00		1.2E+00	1.2E+00	3.19E-01	pCi/L	95%	1.09E+01	1.8E-01	87%	1/28/15 07:23 p	3.6176	LEP5\$1
							Rec Limits:	70	130	-0.1		L	
Batch: 5007055 TC99_ETVDSK_LSC													
Tc-99	4.83E+02		1.3E+01	1.7E+01	9.80E+00	pCi/L	100%	5.44E+02	5.6E+00	89%	1/21/15 03:05 a	0.1255	LSC8
							Rec Limits:	70	130	-0.1		L	
No. of Results: 3 Comments:													

TestAmerica Inc Bias - (Result/Expected)-1 as defined by ANSI N13.30.

rptSTLRchLcs
V5.3.6.5 A2002

FORM II

Date: 29-Jan-15

MATRIX SPIKE RESULTS

Lab Name: TestAmerica Inc SDG: W07031 Matrix: WATER
 Lot-Sample No.: J5A060413-1, B304L6 Report No.: 64492

Parameter	SpikeResult, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Rpt Unit	Yield	Rec- overy	Expected, Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 5007055	Work Order: M5V2P1AF			Report DB ID: M5V2P1FW			Orig Sa DB ID: 9M5V2P10					
Tc-99	3.34E+03		3.1E+01	8.2E+01	9.48E+00	pCi/L	100%	94.93%	3.52E+03	1/20/15 11:56 p	0.129	TC99_ETVDSK_LSC
	5.63E+01								3.6E+01		L	LSC8

Number of Results: 1

Comments:

TestAmerica Inc RER - Replicate Error Ratio = $(S-D)/[\sqrt{(sq(TPUs)+sq(TPUD))}]$ as defined by ICPT BOA.
 rpi\$TLRchMs Bias - $(Result/Expected)-1$ as defined by ANSI N13.30.

V5.3.6.5 A2002